

(PDH-05 and FORT00828230)

Preliminary application 2 (P2) 6/12/2013

Part of this information is included in FORT00828230 (plans omitted)

MEMORANDUM

To: John Allen
cc:

From: Paul Hanson
Dated: 06/12/2013

B1 - MEANS OF ESCAPE OBSERVATIONS

PREMISES: Grenfell Tower, Grenfell Road
APP No: Preliminary
SUBMISSION No: Preliminary (P2)
DRAWING No:
Please also refer to marked up plan P2.

I make the following comments using Approved Document B and, where appropriate, BS 9991.

1. Upper storey powered ventilation system

Objective discussed at preliminary meeting

The existing building appears to have an early push pull powered ventilation system providing powered extract and powered inlet via enclosed riser shafts.

At a preliminary meeting it was proposed to replace the existing powered ventilation system with a new system using the existing riser ducts and therefore the performance of the system would be determined by the constraints of the size of the existing riser shafts.

It is understood that it was not proposed to redesign the system to a modern standard of performance as this is likely to require larger riser shafts, the incorporation of which falls outside the intended scope of the works.

RBKC indicated that in the case of any existing building; provided that the performance of the existing system is not made any worse, the building regulations would not require the system to be upgraded. Details of the performance of the existing and proposed systems was requested to be submitted to enable RBKC to be satisfied that the system would not be adversely affected by the intended works.

Details submitted

Details have not yet been submitted of the performance of the existing system.

If data on the existing system is available, a way forward might be to measure the flow rates of the present situation and provide information about the proposed system.

Therefore in order to consider your proposal details should be submitted of the following:-

- Existing extract rate in m³/s
- Existing 'inlet air' Supply rate in m³/s
- Proposed extract rate in m³/s
- Proposed 'inlet air' Supply rate in m³/s
- Confirmation of design of existing system. Is it natural ventilation or mechanical or a combination
- Method of activation of natural/powered system and fire brigade controls
- Size of natural/powered vent shafts

The proposal for the new system indicates the intention to provide 10 air changes as a design objective. This appears to be using an approach for redesigning the system without a consideration of adverse affect. If you wish to consider redesigning the system to achieve a performance objective rather than match the performance of the existing system, justification for the proposed extract rate needs to be submitted, including performance modelling.

However I would suggest without the need for modelling; that 10 air changes will not provide adequate ventilation to a lobby. An air change rate is a relative figure and is normally used to determine an adhoc ventilation rate for large spaces such as car parks. Air change rates have no relationship with fire size, height of rise of the smoke plume and apartment door leakage rates. The current method used to determine appropriate ventilation rates in residential lobby powered extract systems is to use fire modelling. You may be able to achieve a reasonable approximation of ventilation rates using CFD or a simpler zone model, if you wish to adopt this approach.

If you are concerned about the possible performance of the existing system, you may wish to consider the original strategy (discussed at the preliminary meeting) which was to **demonstrate that you are matching the performance of the existing system**. Then if the existing riser shaft sizes permit, you could **consider increasing the performance of the existing system** by using an increased extract rate (more powerful fan(s)), and hence increase the performance of the system within acceptable design limits (noise/vibration etc).

Adopting this approach may also assist your case to the fire authority mentioned in 2 below.

2. Consultation with Fire Authority regarding the lobby ventilation system

You have requested RBKC consult the Fire authority for the purpose of assuring your client regarding responsibilities under the Regulatory Reform (Fire safety) Order. I note the information submitted by Max Fordham, including the email dated 8/11/13 further explaining the original strategy. However as outlined in my email of 11/11/13 from John Allen of this office, I would recommend the following approach.

The question that needs to be proposed to the Brigade is whether the replacement smoke extract system to the residential parts will be acceptable for the purpose of satisfying a risk assessment under the above-mentioned legislation.

A letter needs to be written that can be forwarded to the Fire Authority that presents information on the existing smoke extract system (Design and performance) and the proposed replacement system.

This should include the following:

- Confirmation of design of existing system. Is it natural ventilation or mechanical or a combination.
- Method of activation of natural/powered system and fire brigade controls
- Size of natural/powered vent shafts
- Powered ventilation extract rate in m³/s
- Inlet air provision (Size if natural in m² or m³/s if powered)
- Confirmation of proposed system, same responses as above.
- Any differences to the existing system i.e. that it is being used for the normal ventilation system should be indicated.
- The case to justify the proposal.

Upon receipt I will pass your question and information to the Fire Authority.

3. Connection with different uses

No objection is raised in principle to the lobby connection with the non-residential uses via a 0.4m² natural ventilated lobby.

In the case of the meeting room connecting with the horizontal escape from the residential units. It is recommended that consideration be given to the provision of an unvented lobby rather than ventilation of the room itself. The latter is unlikely to give protection equivalent to a lobby (it is assumed the room is not sprinklered).

4. Service risers opening in to stairway

Due to the reconfiguration of the stair and lobbies, some riser shafts open directly in to the stairway. This arrangement should be avoided. Is access to the risers necessary at this level (see marked up plans with symbol 'A' for these areas). Access to lobbies is acceptable as identified by symbol 'B'.

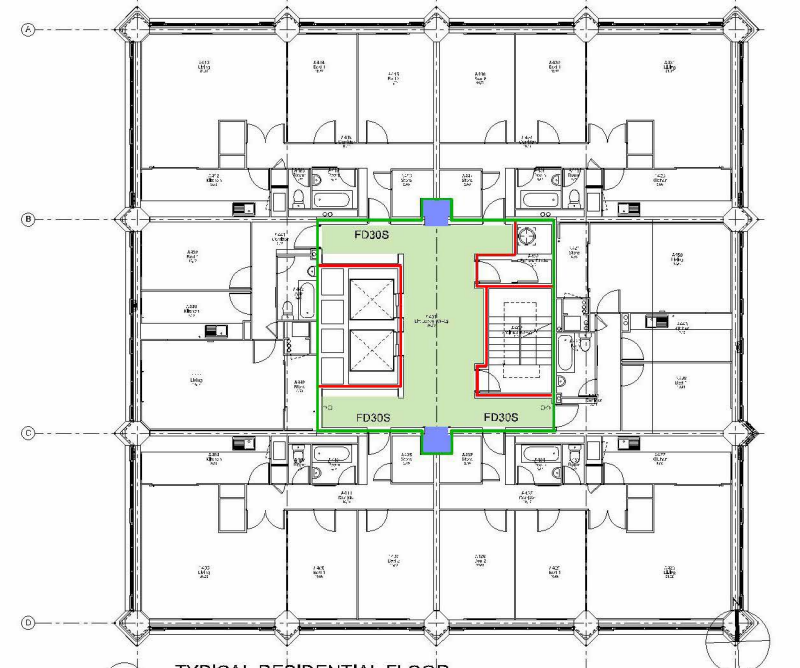
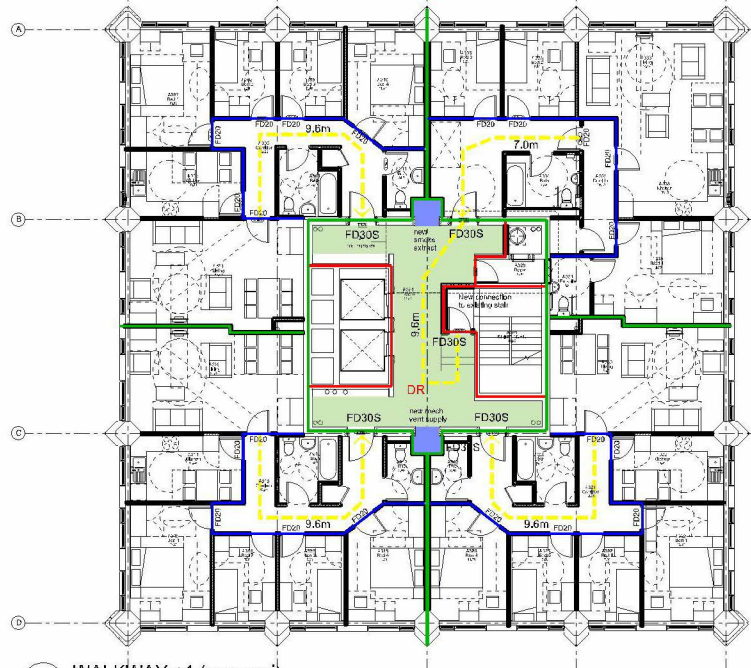
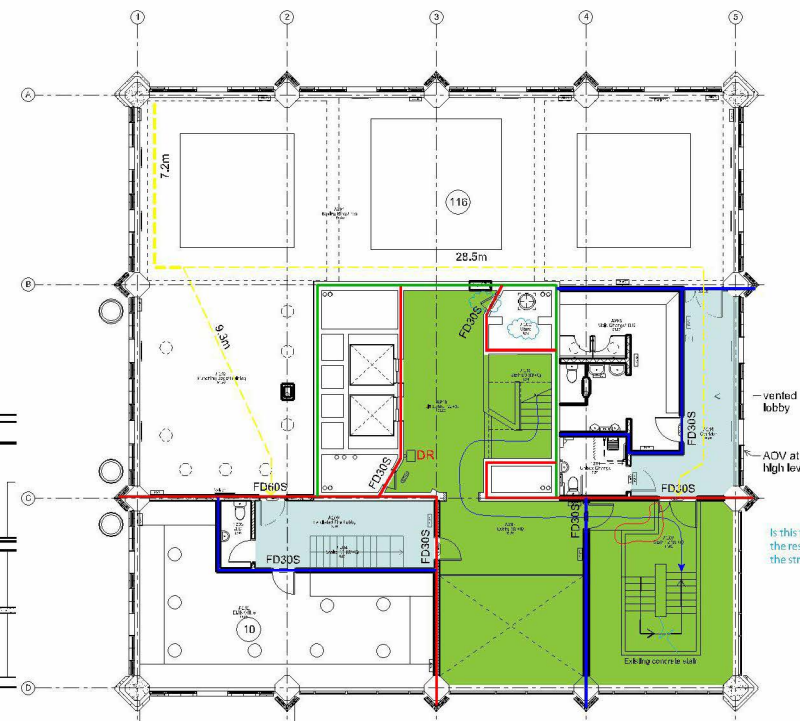
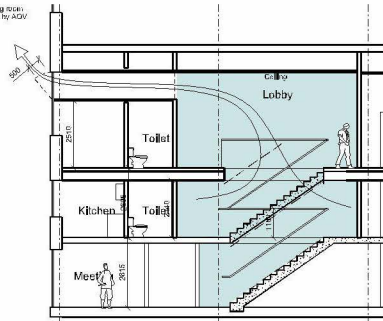
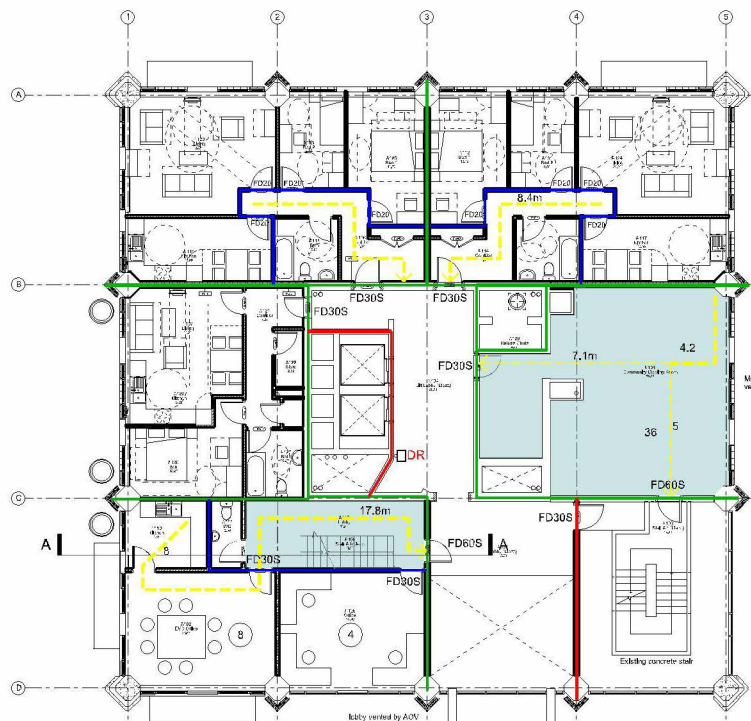
5. Refuse chutes

Please clarify the existing level of protection to the refuse chutes and confirm whether they will serve the altered levels.

6. Marked up plans

For further comments see marked up plans.

Please note that I have not consulted the Fire Authority at this stage.



- NOTES
1. THIS DRAWING IS COPYRIGHT STUDIO E LLP.
 2. THE CONTRACTOR MUST FOLLOW ALL RELEVANT BUILDING REGULATIONS AND STANDARDS FOR ALL WORKS AND MATERIALS.
 3. WHERE ANY DISCREPANCIES ARE FOUND OR THERE ARE ANY AMBIGUITIES, THESE MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION.
 4. WHERE DISCREPANCIES EXIST BETWEEN INFORMATION ON EXISTING CONDITIONS AND DETAILS, OR WHERE THE LATTER TAKE PRECEDENCE.

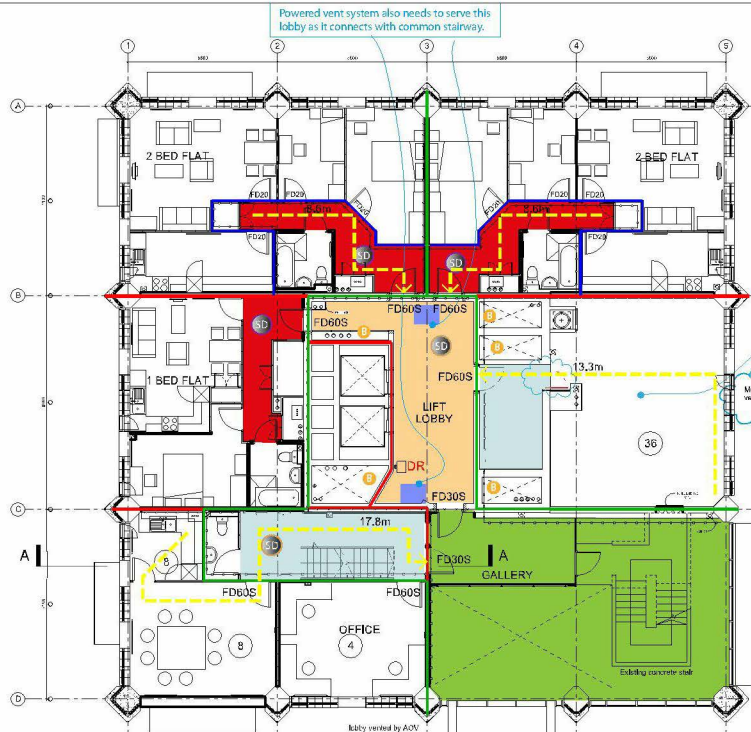
- KEY
- 30 minute rated construction line
 - 60 minute rated construction line
 - 120 minute rated construction line
 - Final Exit
 - Escape route in one direction
 - Escape route in multiple directions
 - DR Dry Riser
 - 32 Room Occupancy
 - AOV vented lobby
 - Mech vented lobby (re-used ducts)

Is this the route from the residential stair to the street?

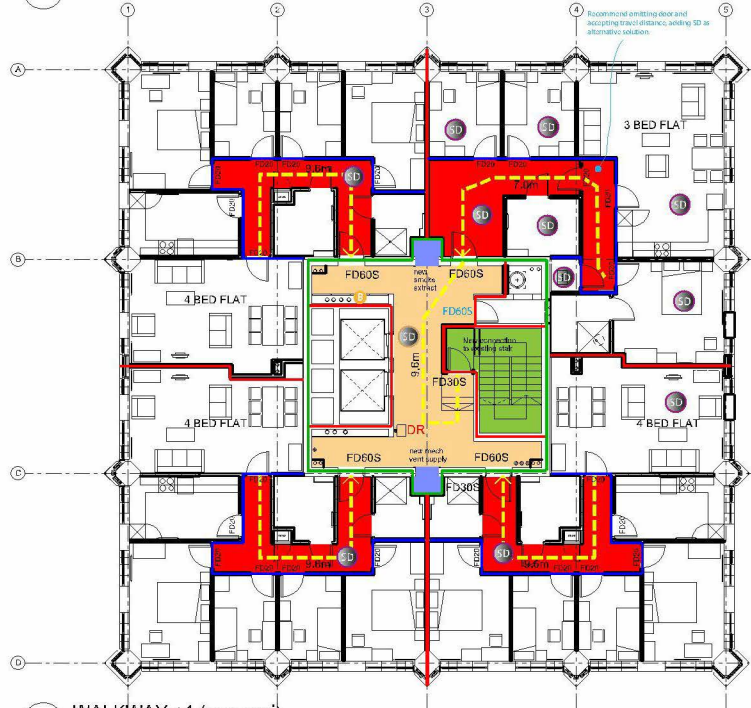


PLANNING

STUDIO E LLP
Public Works, Planning, Regeneration
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 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1 MEZZANINE
1:100



3 WALKWAY +1 (new resi)
1:100

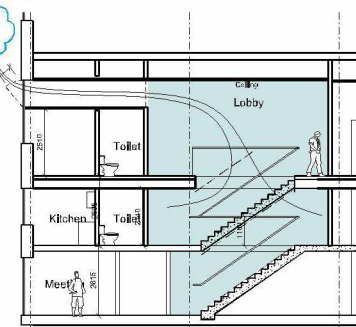
Smoke Detection
System complying with BS 5839-1

To activate powered vent and natural vent systems

Smoke Detection
System complying with BS 5839-6 Grade D Category LD3

Exit signs
To BS 5499: Part 1 or BSEN 7010 and sized to BS 5499: Part 4

This is a room. Venting the room would not provide the same level of protection as venting a lobby. In this case an unvented lobby separation to the residential escape is considered appropriate.



A Office Stair
1:100

Protected Stairway
Fire resisting enclosure with FD30S doors
Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies
Fire resisting enclosure with FD60S doors
Existing powered ventilation system - Powered inlet and outlet
Existing extract rate 7 m³/s
Existing supply 7 m³/s

No details of existing extract / supply rates are given therefore no consideration could be given of adverse effect on existing systems.
If system designers wish to redesign the system without consideration of adverse effect, justification for the proposed extract rate needs to be submitted, including performance modelling.

Doors on escape routes provided with simple fastenings - without the use of a key

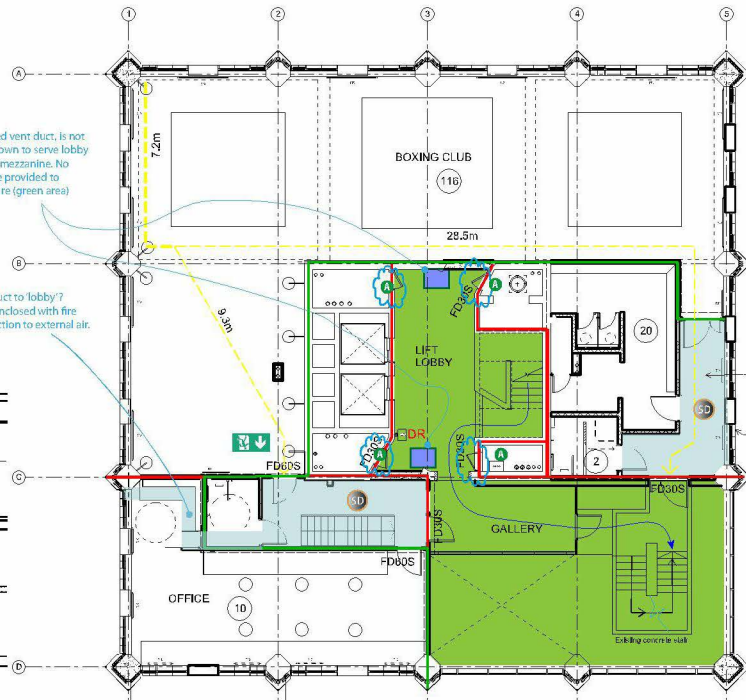
Common Lobbies
Fire resisting enclosure with FD60S doors
Natural vent 0.4m²

Doors on escape routes provided with simple fastenings - without the use of a key

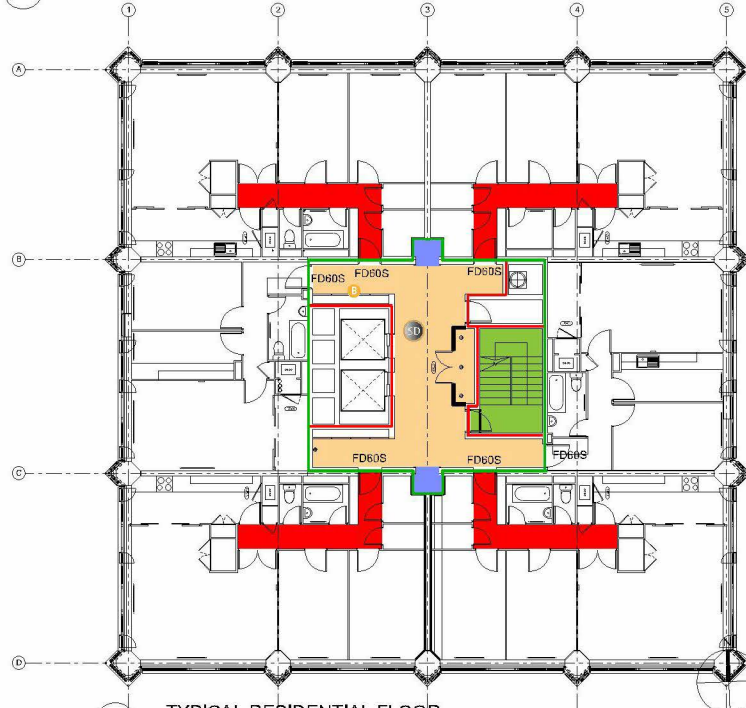
Inner Hall
Fire resisting enclosure with FD20 doors
SD provided for flat warning (not interlinked between flats)
System complying with BS 5839-6 Grade D Category LD3

Risers accessed from Stairway
Access should not be provided to services from the single stairway.
(Hot and cold water/dry riser services are acceptable in metal pipes with suitable fire stopping). (Note in the existing building these risers were in the lobby). Can these access panels be sealed at this level?

Risers accessed from common Lobbies
Fire resistance should be achieved from the riser side of the enclosure. Access to services from the lobby should be via an FD30S with Fire Door Keep Locked Shut Signage.



2 WALKWAY LEVEL
1:100



4 TYPICAL RESIDENTIAL FLOOR
1:100

- NOTES
1. THE DRAWING IS COPYRIGHT STUDIO E.L.P.
 2. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND LOCATIONS OF ALL SERVICES AND EQUIPMENT TO BE INSTALLED AND REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR RESOLUTION.
 3. WHERE ANY DISCREPANCIES ARE FOUND OR THERE ARE DISCREPANCIES THESE MUST BE REPORTED TO THE ARCHITECT FOR RESOLUTION.
 4. WHERE DISCREPANCIES ARE FOUND BETWEEN THE DRAWING AND THE EXISTING BUILDING, THE CONTRACTOR MUST REPORT TO THE ARCHITECT FOR RESOLUTION.

- KEY**
- 30 minute rated construction line
 - 60 minute rated construction line
 - 120 minute rated construction line
 - Final Exit
 - Escape route in one direction
 - Escape route in multiple directions
 - 1hr Fire Curtain
 - DR Dry Riser
 - 32 Room Occupancy
 - AOV vented lobby
 - Mech vented lobby (re-used ducts)

RBKC MOE - P1
Comments in blue by RBKC Building Control



EMPLOYER'S REQUIREMENTS

STUDIO E.L.P.
Public Works Studio: Room
London SW1A 1AA
Tel: 020 7 473 1234
GRENELL TOWER
REGENERATION PROJECT
Phase 1
FIRE ACCESS PLAN

1:100@A1 24/10/13
100% DATE

1275 (05) 100 00 BS
C:\Users\j\Documents\1275 (05) 100 00 BS

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